



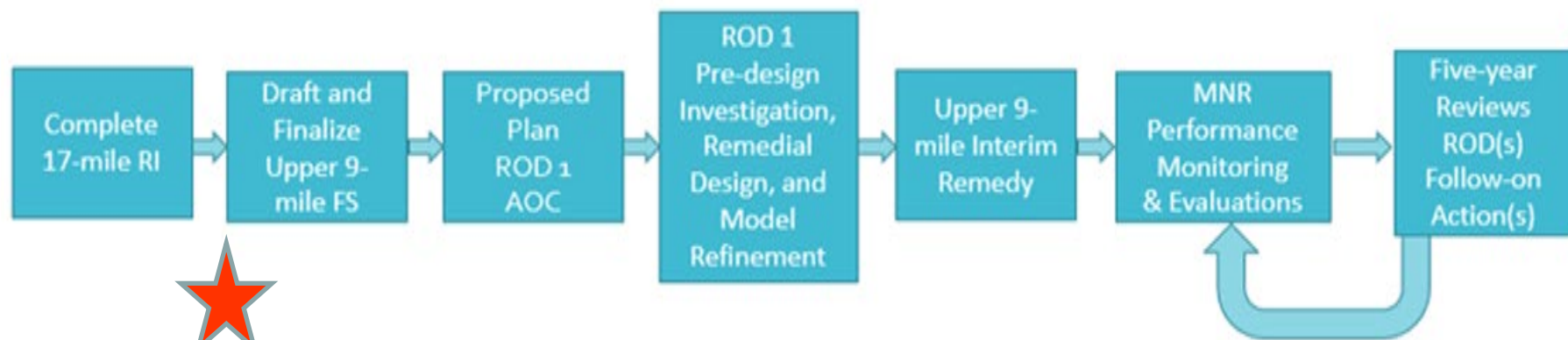
# **Community Advisory Group Meeting February 7, 2019**





# Upper 9 Mile Interim Remedy

## Upper 9-mile Plan – An Adaptive & Iterative Approach



★  
17-mile RI currently  
nearing completion and  
have initiated proposed  
Interim Remedy FS



# Proposed Interim Remedy

- Objective
  - Removal of most significant source areas of sediment contamination in upper 9 miles
    - Assessed through attainment of target post-interim remedy surface-weighted average concentrations
- Anticipated outcomes
  - Reduced exposure
  - Reduced mobilization of contamination
  - Accelerated recovery in sediment and biota

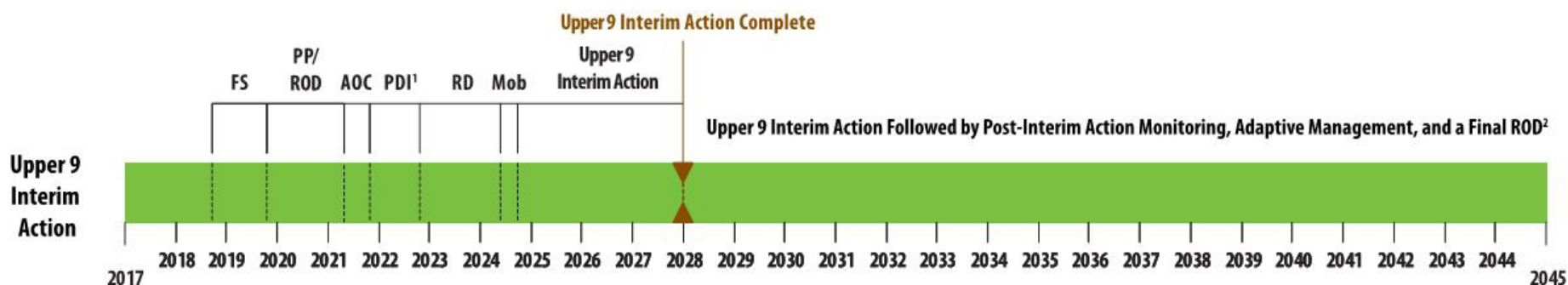


# Adaptive Management

- Adaptive management principles will be applied to interim remedy process
  - New information will be used to maximize the success of the project throughout development, design, implementation, and post-interim remedy monitoring
  - Formal adaptive management framework will be developed in the interim remedy FS
  - Data collected once the interim remedy is completed will be used to determine if any further in-river work is needed, or if sources have been addressed by the interim remedy

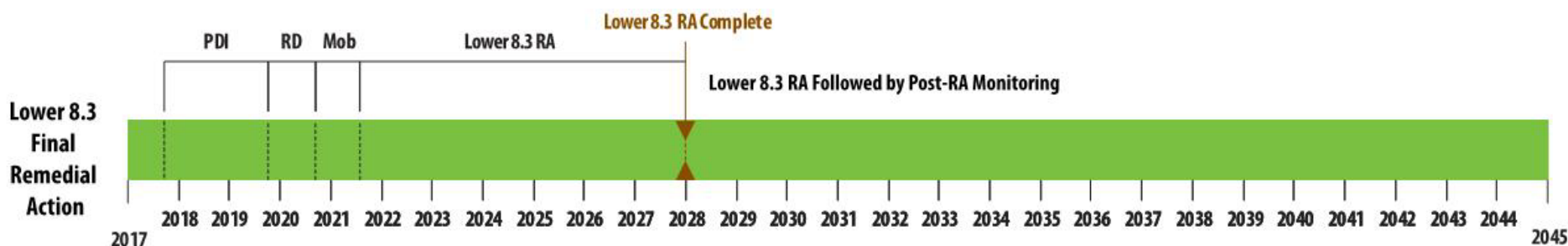


# Interim Remedy Schedule



<sup>1</sup>Prior to the interim action PDI and in-river activity for the Lower 8.3 RA, baseline monitoring will also be implemented consistent with CSTAG recommendations.

<sup>2</sup>Adaptive management will include interim action performance assessment, model refinement, and modeling of recovery rates to facilitate derivation of risk-based goals and completion and implementation of the final ROD.







# Proposed Interim Remedy Feasibility Study

- EPA direction to proceed
  - October 10, 2018 letter from EPA directs CPG to prepare proposed interim remedy FS to evaluate interim remedy alternatives for the upper 9 miles
- Immediate steps for CPG
  - Prepare proposed interim remedy FS work plan (addendum to 2015 FS work plan) just approved
  - Prepare schedule for proposed interim remedy FS - approved
  - Prepare draft proposed interim remedy FS – August?

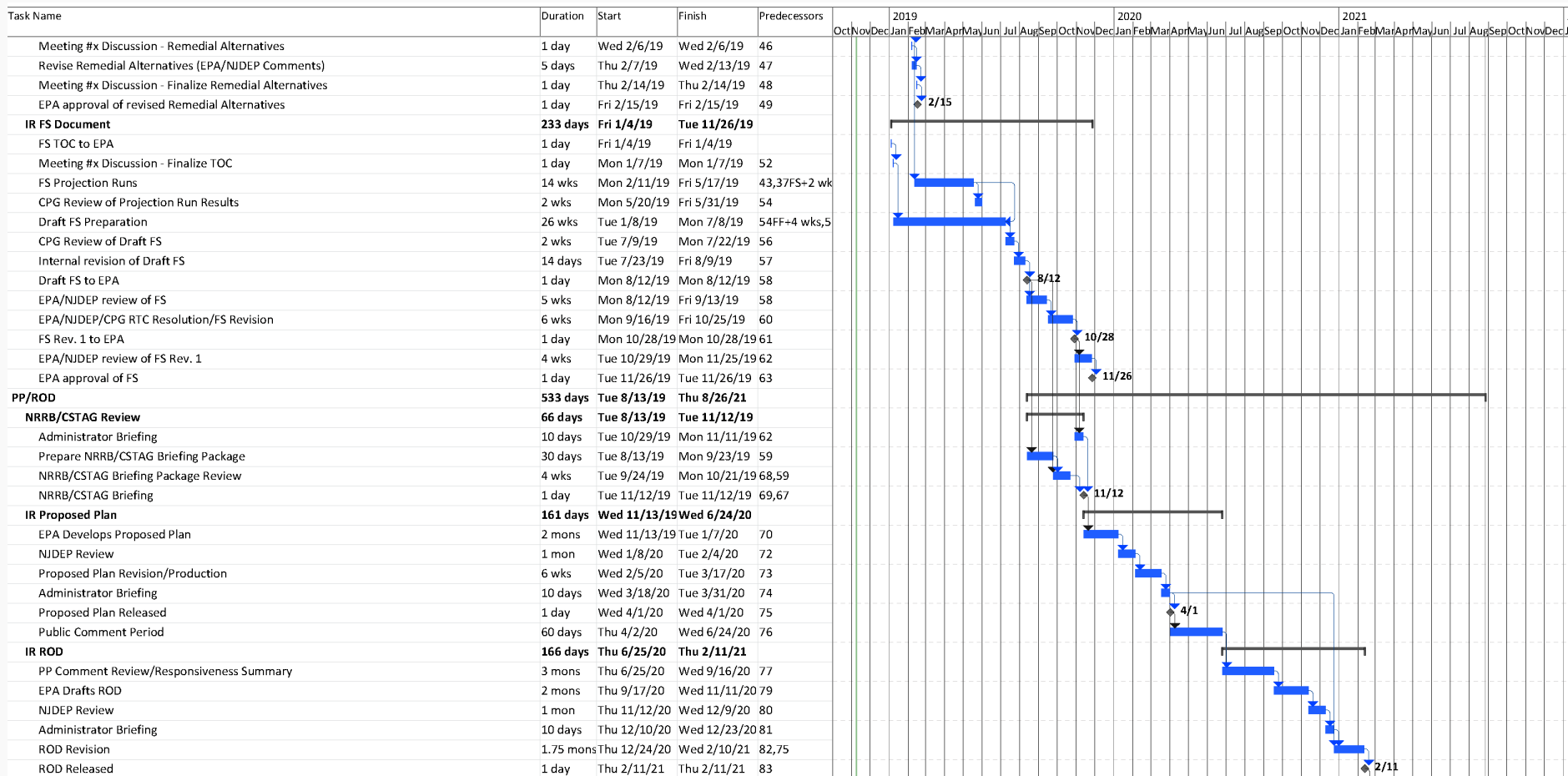


# Interim Remedy FS Schedule

Task Name	Duration	Start	Finish	Predecessors	2019	2020	2021
<b>IA FS</b>	<b>295 days</b>	<b>Wed 10/10/18</b>	<b>Tue 11/26/19</b>		OctNovDecJanFebMarAprMayJunJulAugSepOctNovDecJanFebMarAprMayJunJulAugSepOctNovDecJanFebMarAprMayJunJulAugSepOctNov		
Direction Letter issued by EPA	1 day	Wed 10/10/18	Wed 10/10/18				
<b>IR FS Schedule</b>	<b>13 days</b>	<b>Wed 10/24/18</b>	<b>Fri 11/9/18</b>				
Draft schedule to EPA	1 day	Wed 10/24/18	Wed 10/24/18	2FS+1.8 wks			
Meeting #1 Discussion - Schedule	1 day	Wed 10/24/18	Wed 10/24/18				
Meeting #2 Discussion - Schedule comments	1 day	Thu 11/1/18	Thu 11/1/18				
Revise Schedule (EPA/NJDEP Comments)	4 days	Fri 11/2/18	Wed 11/7/18	6			
Meeting #3 Discussion - Finalize schedule	1 day	Thu 11/8/18	Thu 11/8/18				
EPA approval of schedule (email)	1 day	Fri 11/9/18	Fri 11/9/18	8	11/9		
<b>IR FS Work Plan Addenda</b>	<b>28 days</b>	<b>Wed 10/31/18</b>	<b>Fri 12/7/18</b>				
WP Outline to EPA	1 day	Wed 10/31/18	Wed 10/31/18				
Meeting #2 Discussion - WP Outline	1 day	Thu 11/1/18	Thu 11/1/18				
Draft WP to EPA	1 day	Mon 11/12/18	Mon 11/12/18	2FS+4 wks			
EPA/DEP Review of WP	11 days	Tue 11/13/18	Tue 11/27/18	13			
Meeting #5 Discussion - WP	1 day	Thu 11/29/18	Thu 11/29/18				
Revise WP (EPA/NJDEP Comments)	4 days	Fri 11/30/18	Wed 12/5/18	15			
EPA approval of revised FS WP Addenda (email)	1 day	Fri 12/7/18	Fri 12/7/18	16FS+1 day	12/7		
<b>IR FS RAOs</b>	<b>11 days</b>	<b>Fri 10/26/18</b>	<b>Fri 11/9/18</b>				
Draft RAOs to CPG	1 day	Fri 10/26/18	Fri 10/26/18				
Meeting #2 Discussion - RAOs	1 day	Thu 11/1/18	Thu 11/1/18				
Meeting #3 Discussion - Finalization of RAOs	1 day	Thu 11/8/18	Thu 11/8/18				
EPA approval of RAOs (Memo)	1 day	Fri 11/9/18	Fri 11/9/18	21	11/9		
<b>IR FS Remedial Footprints</b>	<b>58 days</b>	<b>Thu 11/8/18</b>	<b>Mon 1/28/19</b>				
Meeting #3 Discussion - Target SWACs	1 day	Thu 11/8/18	Thu 11/8/18				
Meeting #4 Discussion - Delineation of remedial footprints approach (RAO1)	1 day	Tue 11/13/18	Tue 11/13/18				
EPA/DEP review of RAO1 delineation approach	11 days	Wed 11/14/18	Wed 11/28/18	25			
Meeting #5 Discussion - Comments on RAO1 delineation approach, RAO2 delineation approach	1 day	Thu 11/29/18	Thu 11/29/18	26			
EPA/DEP review of RAO2 delineation approach	4 days	Fri 11/30/18	Wed 12/5/18	27			
Revise RAO1 delineation approach	4 days	Fri 11/30/18	Wed 12/5/18	27			
Meeting #6 Discussion - Finalize RAO1, Comments on RAO2 delineation approaches	1 day	Wed 12/5/18	Wed 12/5/18				
Revise RAO2 delineation approach	5 days	Thu 12/6/18	Wed 12/12/18	30			
Meeting #7 Discussion - Finalize RAO2 delineation approach	1 day	Thu 12/13/18	Thu 12/13/18				
EPA approval of delineation approach (email)	5 days	Fri 12/14/18	Thu 12/20/18	32			
CPG develops remedial footprints	4 wks	Fri 12/21/18	Thu 1/17/19	33			
Meeting #x Discussion - remedial footprints	1 day	Fri 1/18/19	Fri 1/18/19	34			
EPA/DEP review of remedial footprints	1 wk	Fri 1/18/19	Thu 1/24/19	34			
Meeting #x Discussion - Finalize remedial footprints	1 day	Fri 1/25/19	Fri 1/25/19	36			
EPA approval of remedial footprints (email)	1 day	Mon 1/28/19	Mon 1/28/19	37	1/28		
<b>IR FS Engineering assumptions/FS Metrics</b>	<b>10 days</b>	<b>Fri 12/7/18</b>	<b>Thu 12/20/18</b>				
Draft Engineering Assumptions/FS Metrics to EPA	1 day	Fri 12/7/18	Fri 12/7/18				
Meeting #7 - Discussion - Engineering Assumptions/FS Metrics	1 day	Thu 12/13/18	Thu 12/13/18				
Revise Engineering Assumptions/FS metrics (EPA/NJDEP Comments)	3 days	Fri 12/14/18	Tue 12/18/18	41			
Meeting #8 - Discussion - Finalize Engineering Assumptions/FS metrics	1 day	Wed 12/19/18	Wed 12/19/18	42			
EPA approval of revised Engineering Assumptions/FS metrics (memo)	1 day	Thu 12/20/18	Thu 12/20/18	43	12/20		
<b>IR FS Remedial Alternatives</b>	<b>9 days</b>	<b>Tue 2/5/19</b>	<b>Fri 2/15/19</b>				
Draft Remedial Alternatives to EPA	1 day	Tue 2/5/19	Tue 2/5/19	44,38FS+5 da	2/15		



# Interim Remedy FS Schedule (cont'd)







# FS Meetings

- October 2018 to December 2018
  - Regular meetings (EPA, NJDEP and CPG) to resolve critical interim remedy FS inputs
- January 30 to March 2019
  - Continued regular meetings (EPA, NJDEP and CPG)
- March to August 2019
  - Regular meetings and/or conference calls to discuss progress on draft interim remedy FS; draft IR FS submitted in August 2019
- September to October 2019
  - Regular meetings and/or conference calls (EPA, NJDEP and CPG) to resolve interim remedy FS comments; final interim remedy FS submitted in October 2019





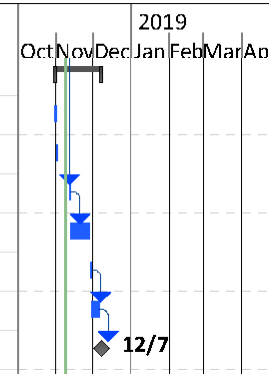
## Interim Remedy FS Inputs

- Remedial Action Objectives
- Target SWACs and remedial action levels
- Approach to developing remediation footprint
- General engineering assumptions
- Interim remedy FS metrics
- Application of numerical modeling
- Remedial alternatives
- Post-interim remedy confirmatory sampling framework



# Interim Remedy FS Work Plan Addendum

Task Name	Duration	Start	Finish	Predecessors	
<b>IR FS Work Plan Addenda</b>	<b>28 days</b>	<b>Wed 10/31/18</b>	<b>Fri 12/7/18</b>		
WP Outline to EPA	1 day	Wed 10/31/18	Wed 10/31/18		
Meeting #2 Discussion - WP Outline	1 day	Thu 11/1/18	Thu 11/1/18		
Draft WP to EPA	1 day	Mon 11/12/18	Mon 11/12/18	2FS+4 wks	
EPA/DEP Review of WP	11 days	Tue 11/13/18	Tue 11/27/18	13	
Meeting #5 Discussion - WP	1 day	Thu 11/29/18	Thu 11/29/18		
Revise WP (EPA/NJDEP Comments)	4 days	Fri 11/30/18	Wed 12/5/18	15	
EPA approval of revised FS WP Addenda (email)	1 day	Fri 12/7/18	Fri 12/7/18	16FS+1 day	



- Draft interim remedy FS work plan addendum submitted by CPG on November 12, 2018
  - EPA and NJDEP reviewed and provided comments to CPG
  - Currently finalizing document



# Interim Remedy RAOs

Task Name	Duration	Start	Finish	Predecessors	2019
IR FS RAOs	11 days	Fri 10/26/18	Fri 11/9/18		Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Draft RAOs to CPG	1 day	Fri 10/26/18	Fri 10/26/18		
Meeting #2 Discussion - RAOs	1 day	Thu 11/1/18	Thu 11/1/18		
Meeting #3 Discussion - Finalization of RAOs	1 day	Thu 11/8/18	Thu 11/8/18		
EPA approval of RAOs (Memo)	1 day	Fri 11/9/18	Fri 11/9/18	21	11/9

- Interim remedy RAOs finalized
  - RAO 1: Address sediment sources to attain 2,3,7,8-TCDD SWAC of not more than 85 ppt (approximately an order of magnitude higher than the lower 8.3 mile remedy 2,3,7,8-TCDD RG); attain PCB SWAC at or below background
  - RAO 2: Address subsurface sediments that could become contamination sources based on erosion potential and remedial action levels derived for subsurface sediments



## Target SWACs

Task Name	Duration	Start	Finish	Predecessors	2019											
IR FS Remedial Footprints	58 days	Thu 11/8/18	Mon 1/28/19		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Meeting #3 Discussion - Target SWACs	1 day	Thu 11/8/18	Thu 11/8/18													

- Interim remedy **target** 2,3,7,8-TCDD SWACs:
  - 65 ppt
  - 75 ppt
  - 85 ppt
  - 125 ppt (this target SWAC is intended to facilitate comparison in the interim remedy FS, and would not be eligible for selection)





# Engineering Assumptions

Task Name	Duration	Start	Finish	Predecessors	2019
<b>IR FS Engineering assumptions/FS Metrics</b>	<b>10 days</b>	<b>Fri 12/7/18</b>	<b>Thu 12/20/18</b>		
Draft Engineering Assumptions/FS Metrics to EPA	1 day	Fri 12/7/18	Fri 12/7/18		
Meeting #7 - Discussion - Engineering Assumptions/FS Metrics	1 day	Thu 12/13/18	Thu 12/13/18		
Revise Engineering Assumptions/FS metrics (EPA/NJDEP Comments)	3 days	Fri 12/14/18	Tue 12/18/18	41	
Meeting #8 - Discussion - Finalize Engineering Assumptions/FS metrics	1 day	Wed 12/19/18	Wed 12/19/18	42	
EPA approval of revised Engineering Assumptions/FS metrics (memo)	1 day	Thu 12/20/18	Thu 12/20/18	43	

- Draft engineering assumptions (e.g., dredging production rates) submitted by CPG on December 11, 2018
  - EPA and NJDEP reviewed and provided comments to CPG
  - Currently resolving comments towards finalizing assumptions



## Other FS Meeting Discussions

- Footprint derivation
- Use of conditional simulation mapping and numerical models
- Post-interim remedy confirmation sampling
  - Sampling methods and density
  - Calculation of post-interim remedy SWACs
  - Evaluation of post-interim remedy SWACs against SWAC targets (attainment metrics)
  - Decision framework for potential follow-on action to achieve source control





## Memorializing Decisions

- Meeting minutes developed for all interim remedy-related meetings to document discussions and decisions
- Memoranda/letters for specific decision points (e.g., RAOs)
- Interim remedy FS-related documents (e.g., interim remedy FS work plan addendum)
- Living decision-tracking document, updated regularly to reflect ongoing discussions, preliminary consensus, and final agreements